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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,039	02/04/2004	Lars Richter	030716 RICHTER	5101
7590	06/07/2006		EXAMINER	
DAVID DOUGLAS WINTERS 2277-C SUITE 237 WILMA RUDOLPH BLVD CALARKSVILLE, TN 37040-5898			COURSON, TANIA C	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/772,039	RICHTER ET AL.	
	Examiner Tania C. Courson	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 24 January 2006.  
 2a) This action is **FINAL**.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-4,7-12,15-28 and 30-41 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-4,7-12,15-28 and 30-41 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 16 November 2005 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “different faces” as stated in line 2 of claims 10, 16 and 24 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because of the following in order to be consistent with the drawings in reference to the specification:

Figure 1A & 4A;

- a) Remove "A" from the title of each figure, change title of figure from "Fig.1A" to -- Fig. 1-- and from "Fig. 4A", to -- Fig. 4 --.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- a) Claims 38, 39 and 41 recite the limitation "using liquid metal" in lines 3, 5 and 5, respectively, although the specification recites on page 8, line 16, a "two sensors each oriented" not a specific type of sensor.

### *Claim Objections*

4. Claims 1, 2, 11, 17, 33, 37, 39 and 41 are objected to because of the following informalities:

- a) claims 1, 2, 37, 39 and 41, lines 10, 11, 11, 12 and 12, respectively, "components" lacks antecedent basis, and;

- b) claims 11 and 17, lines 2-3, respectively, “the edge of the plane in which that angle lies” lacks antecedent basis, and;
- c) claim 33, lines 3-4, “when the unit’s measurement’s one or more pre-determined angular positions” is confusing, it is unclear exactly when the signal is to be emitted.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4, 8-9, 12, 22-23, 31 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Hamar (US 2004/0083616 A1).

Hamar discloses in Figures 1-5, an measurement device comprising:

With respect to Claim 1:

- a) one or more multi-axis gravity sensing tilt sensor(s) or a plurality of single-axis, gravity sensing tilt-sensor(s), situated about different axis (14 and paragraph 35);
- b) a computing device, preferably a microprocessor (36), that receives inputs from the said tilt sensor(s), translates them into expressions of angular measurement and outputs the results for display, computation or extraction (16);
- c) and a unitary means of essentially rigidly mounting components, said means comprising, but not limited to, a case or a frame (12).

With respect to Claim 2:

- a) one or more multi-axis gravity sensing tilt sensor(s) or a plurality of single-axis, gravity sensing tilt-sensor(s), situated about different axis (14 and paragraph 35);
- b) a computing device, preferably a microprocessor (36), that receives inputs from the said tilt sensor(s), translates them into expressions of angular measurement calculates compounded angles of the various angles it measures and and outputs the results for display, computation or extraction (16 and paragraph 35);
- c) and a unitary means of essentially rigidly mounting components, said means comprising, but not limited to, a case or a frame (12).

With respect to Claims 3-4, 8-9, 12, 22-23 and 31:

- a) wherein a means of information extraction is incorporated wherein the means may compromise, but are not limited to, a communications port or electromagnetic transmitter (34);
- b) that displays the results of the measurements and/or calculations in pictorial or graphic form (paragraph 14);
- c) wherein one or more pictorial or graphic displays resemble the form of a bull's-eye bubble level (paragraph 14 and 35);
- d) wherein one or more pictorial or graphic displays resemble the form of a curved-tube bubble level (paragraph 14 and 35);
- e) that displays the results of the measurements and/or calculations in graphic, numeric format (Fig. 1);
- f) wherein computing component, preferably a micro-processor, can automatically select a display mode in accordance with the orientation of the device as detected by the gravity sensing tilt sensor(s) or inertial accelerometers (paragraph 14).

With respect to Claim 37:

- a) one or more multi-axis gravity sensing tilt sensor(s) or one or more single-axis, gravity sensing tilt-sensor(s), situated about different axis (14 and paragraph 35);

- b) a microprocessor (36) that receives inputs from the said tilt sensor(s), translates them into expressions of angular measurement and outputs the results for display, computation or extraction (16 and paragraph 35), and generates a simulated curved-tube bubble level display (paragraph 14 and 35);
- c) and a unitary means of essentially rigidly mounting components, said means comprising, but not limited to, a case or a frame (12).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7, 10-11, 15-21, 24-28, 30 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamar in view of Heger et al. (US 5,956,260) and Franks (US 4,546,551).

Hamar discloses a measurement device, as stated above in paragraph 6.

Hamar does not disclose wherein multiple display modes are controllable, being user selectable to exhibit simultaneously or sequentially, wherein displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made, can display a line representing the edge of the plane in which that angle lies, wherein the display format is user controllable, allowing selection of either graphic or

numeric format, wherein multiply displays may be exhibited simultaneously or sequentially, wherein angles may be measured and/or calculated in multiple modes comprising various levels of precision and of speed of measurement and/or calculation, wherein the modes of measurement and /or calculation may be manually selected by the user, wherein the measurements and results of calculations may be recorded and later displayed or output for reference, wherein the ambient temperature is measured and displayed for calibration purposes wherein a discrete signal, preferably, audio, visual, or electrical, is emitted when the unit's measurements one or more pre-determined angles, comprising a means of recording, or of storing in a memory, a baseline or zero point for each axis from whence angles may be measured and wherein the functions of angular measurement may be set to reset to zero at pre-determined or user selected angles, presenting, at each applicable angle, a display such as would be exhibited by a conventional bubble inclinometer in the level position.

Heger et al. teach an inclination device that consists of wherein multiple display modes are controllable, being user selectable to exhibit simultaneously or sequentially (Fig. 1A and column 3, lines 54-67), wherein displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made (Fig. 1A), can display a line representing the edge of the plane in which that angle lies (Fig. 1A), wherein the display format is user controllable, allowing selection of either graphic or numeric format (Fig. 1A and column 3, lines 54-67), wherein multiply displays may be exhibited simultaneously or sequentially (Fig. 1A and column 3, lines 54-67), wherein angles may be measured and/or calculated in multiple modes comprising various levels of precision and of

speed of measurement and/or calculation (Fig. 1A and column 3, lines 54-67), wherein the modes of measurement and /or calculation may be manually selected by the user (column 3, line 26), wherein the measurements and results of calculations may be recorded and later displayed or output for reference (Fig. 1A and column 3, lines 54-67), wherein a discrete signal, preferably, audio, visual, or electrical, is emitted when the unit's measurements one or more pre-determined angles (16), comprising a means of recording, or of storing in a memory, a baseline or zero point for each axis from whence angles may be measured (column 3, lines 49-60) and wherein the functions of angular measurement may be set to reset to zero at pre-determined or user selected angles, presenting, at each applicable angle, a display such as would be exhibited by a conventional bubble inclinometer in the level position (column 3, lines 49-60 and lines 64-67). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the measurement device of Hamar, so as to include displays exhibited simultaneously or sequentially, a line representing an angle a signal, recording a zero point and resetting to zero, as taught by Heger et al., so as to provide additional measurement and signal features to enhance the precision in measurement during use of the device.

Franks teaches a measurement device that consists of wherein the ambient temperature is measured and displayed for calibration purposes (Fig. 1, temperature display 37). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the measurement device of Hamar, so as to include an ambient

temperature display, as taught by Franks, so as to provide enhanced measurement features during use of the device.

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamar.

Hamar discloses a measurement device, as stated above in paragraph 6.

Hamar does not disclose one or more sensors using liquid metal as gravity sensing means.

Regarding claim 38: Hamar discloses the sensor having a liquid (26) made of a material (Fig. 3). The particular type of material used to make the sensor, absent any criticality, is only considered to be the use of a “preferred” or “optimum” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have found obvious to provide using routine experimentation based, among other things, on the intended use of Applicant’s apparatus, i.e., suitability for the intended use of Applicant’s apparatus. See In re Leshin, 125 USPQ 416 (CCPA 1960) where the court stated that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. Therefore, one skilled in the art would change the type of material of the sensor in order to suit the needs of the user of the device.

10. Claims 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamar.

Hamar discloses a measurement device including the following:

With respect to claims 39-40:

- a) one or more multi-axis gravity sensing tilt sensor(s) or one or more single-axis, gravity sensing tilt-sensor(s), situated about different axis (14 and paragraph 35);
- b) a microprocessor (36) that receives inputs from the said tilt sensor(s), translates them into expressions of angular measurement and outputs the results for display, computation or extraction (16 and paragraph 35);
- c) displays the results of the measurements and/or calculations in pictorial or graphic form (paragraph 14 and 35);
- d) and a unitary means of essentially rigidly mounting components, said means comprising, but not limited to, a case or a frame (12) and;
- e) wherein the display comprises a simulated curved-tube bubble-level (paragraph 14 and 35).

With respect to claim 41:

- a) one or more multi-axis gravity sensing tilt sensor(s) or one or more single-axis, gravity sensing tilt-sensor(s), situated about different axis (14 and paragraph 35);
- b) a microprocessor (36) that receives inputs from the said tilt sensor(s), translates them into expressions of angular measurement and outputs the results for display, computation or extraction (16 and paragraph 35), and computes and generates a simulated curved-tube bubble level display (paragraph 14 and 35);

- c) and a unitary means of essentially rigidly mounting components, said means comprising, but not limited to, a case or a frame (12).

Hamar does not disclose one or more sensors using liquid metal as gravity sensing means.

Regarding claim 39 and 41: Hamar discloses the sensor having a liquid (26) made of a material (Fig. 3). The particular type of material used to make the sensor, absent any criticality, is only considered to be the use of a “ preferred ” or “ optimum ” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have find obvious to provide using routine experimentation based, among other things, on the intended use of Applicant’s apparatus, i.e., suitability for the intended use of Applicant’s apparatus. See In re Leshin, 125 USPQ 416 (CCPA 1960 ) where the court stated that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. Therefore, one skilled in the art would change the type of material of the sensor in order to suit the needs of the user of the device.

#### *Response to Arguments*

11. Applicant's arguments filed on January 24, 2006 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

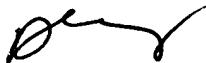
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tania C. Courson whose telephone number is (571) 272-2239. The examiner can normally be reached on Monday, Wednesday and Thursday from 10AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached on (571) 272-2245.

The fax number for this Organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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SUPERVISORY PATENT EXAMINER  
GROUP ART UNIT 2859

TCC  
June 1, 2006